AMENDMENT TO THE SPECIFICATION

Please replace the paragraphs beginning on page 6, lines 10, 13, 15, 18 and 19 with the following new paragraphs.

FIGS. ~~1(a), 1(b), and 1(c)~~ 1A, 1B, and 1C depict a conventional capacitive sensor and circuit for detecting secondary ignition voltages of a distributor-based ignition system, a coil-on plug (COP) ignition coil with integrated igniter, and another type of COP capacitive sensor placed adjacent a COP.

FIGS. ~~2(a) and 2(b)~~ 2A and 2B respectively depict a typical primary ignition waveform and secondary ignition waveform displayed as a function of time.

FIGS. ~~3(a), 3(b), 3(c) and 3(d)~~ 3A, 3B, 3C and 3D show aspects of capacitive sensors in accord with the present concepts including, in FIG. [[3(c)]] 3C, a view of the capacitive sensor of FIGS. ~~3(a) and 3(b)~~ 3A and 3B installed on a housing of a coil-on plug.

FIG. 4 shows aspects of another capacitive sensor in accord with the present concepts.

FIG. 5 shows a four cylinder parade display prior to Channel 1 inversion.

Please replace the paragraph beginning on page 7, line 1 with the following new paragraph.

FIGS. ~~6(a) and 6(b)~~ 6A and 6B, respectively, show a circuit diagram of a circuit advantageously implementing the aforementioned capacitive sensors and an exemplary control box housing such circuit and depicting the input and output connections and controls.

Please replace the paragraph beginning on page 7, line 9, with the following new paragraph.

FIGS. ~~2(a) and 2(b)~~ 2A and 2B illustrate, respectively, a typical primary ignition waveform and secondary ignition waveform as a function of time. The waveforms have three basic sections labeled Firing Section, Intermediate Section, and Dwell Section.

Please replace the paragraph beginning on page 7, line 12, with the following new paragraph.

Common reference numerals are used in FIGS. ~~2(a) and 2(b)~~ 2A and 2B to represent common events occurring in the primary and secondary waveforms. At the start S of the waveform, no current flows in the primary ignition circuit. Battery or charging system voltage available at this time generally ranges from approximately 12-15 volts, but is typically between about 12-14 volts. At 210, the primary switching device turns on the primary current to start the "dwell" or "charge" section. At 220, current flows through the primary circuit, establishing a magnetic field in the ignition coil windings. A rise in voltage occurs along 230 indicating that coil saturation is occurring and, on ignition systems that use coil saturation to control coil current, a current hump or voltage ripple appears at this time. The part of the waveform representing primary circuit on-time is between points 210 and 240. Thus, the portion of the signal between points 210 and 240 represents the dwell period or "on-time" of the ignition coil primary current.

Please replace the paragraph beginning on page 8, line 17, with the following new paragraph.

One aspect of a capacitive sensor 300 in accord with the present concepts is shown in FIGS. ~~3(a), 3(b), 3(c) and 3(d)~~ 3A, 3B, 3C and 3D. FIG. [[3(c)]] 3C shows the capacitive sensor 300 of FIGS. ~~3(a) and 3(b)~~ 3A and 3B installed on a housing 305 of a coil-on plug (COP). FIG. [[3(c)]] 3D shows another example of a capacitive sensor 300 in accord with the present concepts. Although the capacitive sensor 300 of FIG. 3D is generally similar to the examples in FIGS. ~~3(a), 3(b), 3 (c)~~ 3A, 3B and 3C, the capacitive sensor is formed from fewer pieces or stampings, two stampings as opposed to three stamping in the example of FIGS. ~~3(a), 3(b), and 3(c)~~ 3A, 3B and 3C and is thus more economical to produce while retaining full functionality.

Please replace the paragraph beginning on page 9, line 18 with the following new paragraph.

In the example of FIGS. ~~3(a), 3(b), 3(c) and 3(d)~~ 3A, 3B, 3C and 3D, each of the first portion 310 and the second portion 320 of the capacitive sensor has at least one engagement member 330 to grip the COP housing 305 along opposing sides. In this example, the first portion 310 and the second portion 320 each has two downwardly projecting engagement members 330. However, a lesser or greater number of engagement members could be provided on one or both of the first portion 310 and the second portion 320 and the engagement members could take on any shape or form suitable for imparting a laterally biasing force to a COP housing sufficient to retain the sensor in place during a test.

Please replace the paragraph beginning on page 10, line 5 with the following new paragraph.

A spring 340 or similarly adapted biasing element, such as a durable rubber band, is provided to bias the first portion 310 toward the second portion 320 and thereby maintain the first portion and second portion in a substantially closed state. The biasing element, such as spring 340, may be a compression spring or a tension spring in accord with a desired arrangement of fixed and movable anchorage points of the spring. In the examples illustrated in FIGS. ~~3(a)-3(d)~~ 3A-3D, spring 340 is a ~~compression~~ tension spring. FIGS. ~~3(a)-(b) and (d)~~ 3A-B and D show spring 340 in an extended state prior to installation. As first portion 310 and second portion 320 are expanded outwardly by an external force to translate the first portion relative to the second portion, spring 340 is further compressed, as shown in FIG. [[3(c)]] 3C, providing a force sufficient to attach the capacitive sensor 300 to a COP housing 305 through engagement members 330.

Please replace the paragraph beginning on page 11, line 17 with the following new paragraph.

The cross-member 350, having a curved or U-shaped profile in the example of FIGS. ~~3(a), 3(b) and 3(c)~~ 3A, 3B and 3C, may optionally travel within or along a guide, grooves, or track formed in or by the first portion 310 and/or second portion 320. This cross-member 350 is optional and is not included in the example shown in FIG. [[3(d)]] 3D.

Please replace the paragraph beginning on page 11, line 21 with the following new paragraph.

As shown in FIG. [[3(d)]] 3D, an output lead 375 is connected to the capacitive sensor 300 at a base of the fixed guide rod 360 which passes through the spring 340 coil, such as

shown in the example of FIGS. ~~3(a), 3(b) and 3(c)~~ 3A, 3B and 3C. The output lead terminates, at a distal end, in a conventional connector, such as a male RCA connector (mRCA) or female RCA connector (fRCA). The output lead 375 may, however, be connected to any portion of the capacitive sensor 300.

Please replace the paragraph beginning on page 13, line 17 with the following new paragraph.

In lieu of the positive connection of the capacitive sensor to the COP housing, as in the example provided in FIGS. ~~3(a), 3(b) and 3(c)~~ 3A, 3B and 3C, the capacitive sensor 400 of FIG. 4 is mounted in the engine compartment in the general vicinity of a selected COP housing. The movable arm 405, which may comprise one or more articulated (jointed) and/or telescoping sections, may then be moved or rotated along a first plane (e.g., up and down) and/or a second plane (e.g., side to side).

Please replace the paragraph beginning on page 16, line 17 with the following new paragraph.

FIG. [[6(a)]] 6A shows a circuit diagram of a circuit 601 advantageously implementing the aforementioned capacitive sensors (e.g., 300, 400), whereas FIG. [[6(b)]] 6B shows an exemplary control module 600 housing the circuit of Fig. [[6(a)]] 6A depicted the input and output connections, as well as control switches. As illustrated, control module 600 and associated circuit 601 comprise an octal RCA assembly 605, such as a Radio Shack 274-0370, enabling connection of the control module/circuit to eight capacitive sensors by means of the capacitive sensor outlet lead RCA connectors. Control module 600 circuit 601 could alternatively comprise a greater (e.g., 12) or lesser (e.g., 4) number of RCA connectors or comparable electrical connectors. Each of the capacitive sensors (e.g., 300, 400) is

connected to a respective one of the J1 RCA terminals by a conventional mRCA connector. In one aspect, the capacitive sensors (e.g., 300, 400) comprise a pigtailed outlet lead several inches long terminating in a fRCA connector. The fRCA connector may then be connected to an extension cable, such as a 5' extension cable having mRCA connectors at both ends, to effect connection between the capacitive sensor (e.g., 300, 400) and the control module 600 circuit 601.

Please replace the paragraph beginning on page 19, line 14 with the following new paragraph.

A flying lead is also optionally provided with an alligator-type ground clip 615, as shown in both FIGS. ~~6(a) and 6(b)~~ 6A and 6B, so as to ensure an effective ground for the control module 600 internal grounds. The ground clip 615 is advantageously grounded to the vehicle or motor metal.

Please replace the paragraph beginning on page 21, line 14 with the following new paragraph.

With reference to FIGS. ~~6(a) and 6(b)~~ 6A and 6B, capacitive sensors (not shown) are connected to substantially similar positions on respective COPs. The outputs from the capacitive sensors are then connected to inputs in the control module and outputs therefrom are then connected to the selected lab scope or MODIS™ system, as described below. For a conventional COP, the capacitive sensors described above are connected, via the aforementioned output leads, to the inputs J1-1 through J1-8 of the control module, in correspondence to the number of capacitive sensors required for the vehicle (e.g., 8 sensors for an 8-cylinder vehicle). On the control module 600, the technician should set the CNTRL

C to 1, use CNTRL A to set level, set each level to 10 kV, whether positive, negative, or both, and the ground (GND) clip should be clipped to motor metal.